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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.    | CONFIRMATION NO. |
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| 09/997,972      | 11/29/2001  | Xiaoju Wu            | TI-33005 (032350.B372) | 4900             |

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EXAMINER

LATTIN, CHRISTOPHER W

ART UNIT PAPER NUMBER

2812

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/997,972

Applicant(s)

WU, XIAOJU

Examiner

Christopher W Lattin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 12-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Malhi et al. (U.S. Patent 5,717,241).

Malhi et al. teaches a method for manufacturing a semiconductor device, comprising forming a buried layer 36 of a semiconductor substrate 32; forming an active region 48 adjacent at least a portion of the buried layer 36; forming an isolation structure 39 by either STI or LOCOS (see column 8) adjacent at least a portion of the active region 48; forming a gate oxide 50 adjacent at least a portion of the active region; forming a polysilicon layer 52 adjacent at least a portion of the gate oxide; removing at least a portion of the polysilicon layer to form a polysilicon definition structure 52 by masking a first portion of the polysilicon layer with mask 81, leaving a second portion of the polysilicon layer unmasked; and removing the second portion of the polysilicon layer, wherein the polysilicon definition structure at least substantially surrounds and defines an emitter contact region; forming an implant region 62 of the emitter contact region, wherein the implant region is self-aligned; implanting a base contact region 54, wherein the base contact region is proximate an outer edge of the polysilicon definition

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structure, forming one or more spacer structures 56 adjacent the polysilicon definition structure, forming an emitter contact at the emitter contact region (see column 8 line 67- column 9 line 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malhi et al. (U.S. Patent 5,717,241).

Malhi et al. teach structure parameters on the same order as and, in fact, smaller than that presently claimed. Official Notice is taken that forming the feature sizes claimed are not critical to the presently claimed method and, regardless, would have been well known to those skilled in the art at the time of the invention and in light of the teachings of Malhi et al.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malhi et al. (U.S. Patent 5,717,241) in view of Wolf (Silicon Processing for the VLSI Era Volume 3: The Submicron MOSFET, Sunset Beach, CA, 1995, p.p. 634-635).

Malhi et al. is applied supra and teaches all of the limitations of claim 11, except for the formation of nitride spacers. Wolf teaches the formation of nitride spacers to

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enhance the dielectric capabilities of the spacer. It would have been obvious to one skilled in the art at the time of the invention to form spacers of nitride in order to increase the dielectric constant and thus better insulate the gate from the adjacent contacts taught by Malhi et al.


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Lattin whose telephone number is (703) 305-3017. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached at (703) 308-3325. The fax numbers for this Group are (703) 872-9318 for responses to non-final actions and (703) 872-9319 responses to final actions.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

  
John F. Niebling  
Supervisory Patent Examiner  
Technology Center 2800

CWL   
June 13, 2003